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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,848	12/31/2001	Jae Hyung Lee	049128-5034	5336

9629 7590 12/31/2007

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EXAMINER	
KUMAR, SRILAKSHMI K	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
12/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/029,848	LEE ET AL.	
	Examiner	Art Unit	
	Srilakshmi K. Kumar	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. §'133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11,12 and 14-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 11 16* is/are rejected.

7)☒ Claim(s) *2-9,12,14,15 and 17-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The following office action is in response the amendment filed on October 12, 2007. Claims 1-9, 11-12, 14, 16-20 have been amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. ***Claims 1, 11 and 16*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura (U.S. Patent No. 2001/0002829) in view of Chiang (U.S. Patent No. 6,271,822).

With reference to **claims 1, 11, and 16**, Nishimura teaches a liquid crystal polarity inversion driver determining whether a polarity of a liquid crystal is inverted and inverting the polarity of the liquid crystal in accordance with the determined result (see paragraph 43-44); a first data inversion driver (10-1) determining whether a number of transition of data having a plurality of bits is more than half of the plurality of the bits of data, and inverting the data in

accordance with the determined result (see paragraph 49); a second data inversion driver (10-2) determining whether a number of transition of data having a plurality of bits is more than half of the plurality of bits of data, and inverting the data in accordance with the determined result (see paragraph 49). While the preferred embodiment of Nishimura teaches a four port data polarity inverter, Nishimura teaches in Fig. 8 where a two port polarity inverter can be used and further, each inverter has two ports.

Nishimura does not teach wherein the first set of data is odd numbered bits in an input data and the second set of data is even numbered bits in the input data. Chiang teaches in Fig. 2, item 221, a polarity inversion circuit. In col. 5, lines 21-47, Chiang teaches where the inversion circuit encompasses two sets of data, one where the data is odd numbered bits where they have a positive polarity, and the second being where the data is even numbered bits where they have a negative polarity.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow that the data be divided into even and odd groups as taught by Chiang, to be used in a system similar to that which is taught by Nishimura, which allows for 2-port data polarity inversion. By allowing such a combination a large high-resolution liquid crystal display with a reduction in power consumption would result (see Chiang col. 4, lines 19-24).

Allowable Subject Matter

4. Claims 2-9, 12, 14, 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

With respect to dependent claim 2, the prior art of record does not teach where a first inversion signal summer counting the number of the first signal and outputting a first REV signal having a high level or a low level according to the number counted of the first signal and a first data inversion signal output part receiving the first REV signal from the first data inversion signal summer and outputting either the odd data or an inverted odd data according to the first REV signal.

With respect to dependent claim 3, the prior art of record does not teach where a second inversion signal summer counting the number of the second signal and outputting a second REV signal having a high level or a low level according to the number counted of the second signal and a second data inversion signal output part receiving the second REV signal from the second data inversion signal summer and outputting either the even data or an inverted even data according to the second REV signal.

With respect to dependent claim 12, the prior art of record does not teach where inverting the odd data and outputting the inverted odd data if the number of the first data transition is more than half of a total number of the odd data bit, and outputting the odd data without an inversion if the number of the first data transition is less than or equal to the half of the total number of the odd data bit and inverting the even data and outputting the inverted even data if the number of the second data transition is more than half of a total number of the even data bit, and outputting the even data without an inversion if the number of the second data transition is less than or equal to the half of the total number of the even data bit.

With respect to dependent claim 17, the prior art of record does not teach where a first inversion signal summer counting the number of the first signal and outputting a first REV signal

having a high level or a low level according to the number counted of the first signal and a first data inversion signal output part receiving the first REV signal from the first data inversion signal summer and outputting either the odd data or an inverted odd data according to the first REV signal, and where a second inversion signal summer counting the number of the second signal and outputting a second REV signal having a high level or a low level according to the number counted of the second signal and a second data inversion signal output part receiving the second REV signal from the second data inversion signal summer and outputting either the even data or an inverted even data according to the second REV signal.

With respect to claims 4-9, 14, 18-20, these claims are objected to as then depend upon an objected to base claim.

Response to Arguments

6. Applicant's arguments filed October 12, 2007 have been fully considered but they are not persuasive.

With respect the arguments to claims 2-9, 12, 14, 17-20, these are moot as are shown to have objected to subject matter above.

With respect to claims 1, 11 and 16, applicant argues where the prior art of record does not teach where a first data inversion driver (and method for) determining whether a number of transition of odd data having a plurality of bits is more than half of the bits of the odd data, and inverting the odd data in accordance with the determined result, and a second data inversion driver determining whether a number of transition of even data having a plurality of bits is more than half of the bits of the even data and inverting the even data in accordance with the determined result. Examiner, respectfully, disagrees. Nishimura determines the number of

transition of the data where the plurality of bits is more than half and inverting accordingly in paragraph 43-44 and 49 where the plurality of bits may be all of the bits, thus teaching more than half. Nishimura does not explicitly state where the data is split into odd and even. The prior art of Chiang teaches where the data is split into odd and even data in Fig. 2, item 221, and col. 5, lines 21-47. The prior art of Chiang is added to teach two different data sets. The combination of Nishimura and Chiang is proper as the prior art of Chiang enables using odd and even groups in the polarity inverter, and further, enables a large high resolution liquid crystal display with a reduction in power consumption (Chiang col. 4, lines 19-24).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srilakshmi K. Kumar whose telephone number is 571 272 7769. The examiner can normally be reached on 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Lefkowitz can be reached on 571 272 3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Srilakshmi K Kumar
Examiner
Art Unit 2629

SKK
December 23, 2007